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IP Administration
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EXAMINER

ORTIZ, BELIX M

ART UNIT	PAPER NUMBER
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2175

6

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/068,466

Applicant(s)

SAFFER ET AL.

Examiner

Belix M. Ortiz

Art Unit

2175

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-73 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-22, 29-35, 39-53, 60-63, 65-67 and 69-73 is/are rejected.
- 7) ☒ Claim(s) 5-7, 23-28, 36-38, 54-59, 64 and 68 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.


SAM RIMELL
PRIMARY EXAMINER

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: in figure 2, reference characters "40" and in figure 4, reference character "91" are not described in the written description. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 8-13, 29-35, 39-44, 60-63, 65-67, and 69 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawai (U.S. patent 5,717,924).

As to claim 1, Kawai teaches an operational data store (see abstract; column 1, lines 8-10; and column 3, lines 29-33), comprising:

an insert table for storing new data (see figure 10A, character 320);
a history table for storing historical data (see figure 10A, character 328); and
transfer logic for periodically transferring new data from the insert table to the history table (see figure 10A).

As to claim 2, Kawai teaches wherein the history table is partitioned (see column 2, lines 27-29).

As to claim 3, Kawai teaches wherein the history table is partitioned by range (see column 18, lines 45-46).

As to claim 4, Kawai teaches wherein each partition is further sub-partitioned (see Figures 2 and 5).

As to claim 8, Kawai teaches the transfer logic comprising:
a secondary table (see figure 10B, character 344);

fill logic for filling the secondary table with selected data from the insert table (see figure 10B); and

secondary transfer logic for transferring the secondary table into the history table, the selected data thereby being transferred into the history table (see figure 10B).

As to claim 9, Kawai teaches wherein the history table has an indexing scheme, the secondary transfer logic (see figures 15A and 15B; column 10, line 17; and column 13, lines 9-19) further comprising:

indexing logic for applying the history table indexing scheme to the secondary table (see figures 15A and 15B; column 10, line 17; and column 13, lines 9-19).

As to claim 10, Kawai teaches wherein the indexing logic applies the history table indexing scheme to the secondary table prior to transferring the secondary table into the history table (see figures 15A and 15B).

As to claim 11, Kawai teaches the secondary transfer logic further comprising: table logic for creating a new partition the history table, the new partition for swapping with the secondary table (see table 2, lines 9).

As to claim 12, Kawai teaches wherein the secondary transfer logic swaps the secondary table: and the new partition by exchanging respective pointers (see column 10, line 14 and column 10, lines 25-30).

As to claim 13, Kawai, teaches the operational data store further comprising:
a query engine for applying a database query to both the history table and
the insert table (see column 2, lines 19-21 and column 4, lines 29-42).

As to claim 29, Kawai teaches wherein data from the insert table is transferred to
the history table at regular intervals (see column 16, lines 37-42 and column 16, lines
46-50).

As to claim 30, Kawai teaches wherein the intervals are configurable (see column
16, lines 37-52).

As to claim 31, Kawai teaches wherein the intervals are different for different
tables (column 16, lines 38-42).

As to claim 32, Kawai teaches a method for maintaining an operational data
store (see abstract; column 1, lines 8-10; and column 3, lines 29-33), comprising:
inserting new data into an insert table (see figure 10A, character 320);
periodically transferring data from the insert table to a history table (see figure
10A).

As to claim 33, Kawai teaches the method further comprising:
partitioning the history table (see column 2, lines 27-29).

As to claim 34, Kawai teaches wherein the history table is partitioned according to range (see column 18, lines 45-46).

As to claim 35, Kawai teaches the method further comprising:
sub-partitioning each partition (see figures 2 and 5).

As to claim 39, Kawai teaches the method further comprising:
creating a secondary table (see figure 10B, character 344);
filling the secondary table with selected data from the insert table (see figure 10B); and
transferring the secondary table into the history table, the selected data thereby being transferred into the history table (see figure 10B).

As to claim 40, Kawai teaches wherein the history table has an indexing scheme (see figures 15A and 15B; column 10, line 17; and column 13, lines 9-19), the method further comprising:

applying the history table indexing scheme to the secondary table (see figures 15A and 15B; column 10, line 17; and column 13, lines 9-19).

As to claim 41, Kawai teaches wherein the history table indexing scheme is applied to the secondary table prior to transferring the secondary table into the history table (see figures 15A and 15B).

As to claim 42, Kawai teaches the method further comprising:
creating a new partition in the history table, wherein the secondary table
is transferred by being swapped with the new partition (see table 2, line 9).

As to claim 43, Kawai teaches wherein the secondary table and new partition are
swapped by exchanging respective pointers (see column 10, line 14 and column 14,
lines 25-30).

As to claim 44, Kawai teaches the method further comprising:
applying a database query to both the history table and the insert table (see
column 2, lines 19-21 and column 4, lines 29-42).

As to claim 60, Kawai teaches a method for operating an operational data store
(see abstract; column 1, lines 8-10; and column 3, lines 29-33), comprising:
creating a new partition in a composite-partitioned history table (see figure 7);
creating a partitioned temporary table (see figure 10B, character 332);
filling the temporary table with data from an insert table (see figure 10B,
character 336);
exchanging the temporary table with the new partition (see figure 10B, character
348); and
receiving a query and applying the query to both the history table and the insert
table (see column 2, lines 19-21 and column 4, lines 29-42).

As to claim 61, Kawai teaches the method further comprising:
creating a new partition in the insert table based on values from an
existing partition (see figure 7); and
dropping the existing partition (see figure 10B, character 340).

As to claim 62, Kawai teaches an operational data store (see abstract; column 1, lines 8-10; and column 3, lines 29-33), comprising:
means for inserting new data into an insert table (see figure 10A, character 320);
means for periodically transferring data from the insert table to a history table
(see figure 10A); and
means for applying a database query to both the history table and the insert table
(see column 2, lines 19-21 and column 4, lines 29-42).

As to claim 63, Kawai teaches the operational data store further comprising:
means for batching new data (see column 2, lines 15-17); and
means for inserting the batched new data into the insert table with a single
database access (see column 2, lines 34-36).

As to claim 65, Kawai teaches an operational data store (see abstract; column 1, lines 8-10; and column 3, lines 29-33), comprising:
means for creating a new partition in a composite-partitioned history table (see table 2, line 9);
means for creating a partitioned temporary table (see figure 10B, character 332);

means for filling the temporary table with data from an insert table (see figure 10B);

means for exchanging the temporary table with the new partition (see figure 10B, character 348); and

means for receiving a database query and applying the query to both the history table and the insert table (see column 2, lines 19-21 and column 4, lines 29-42).

As to claim 66, Kawai teaches a computer program product for operating an operational data store, the computer program product comprising a computer usable medium having computer readable code thereon (see abstract; figure 1; and column 1, lines 6-8), including program code which:

inserts new data into an insert table (see figure 10A, character 320);

periodically transfers data from the insert table to a history table (see figure 10A);

and

applies a database query to both the; history table and the insert table (see column 2, lines 19-21 and column 4, lines 29-42).

As to claim 67, Kawai teaches wherein the program code further:

batches new data (see column 2, lines 15-17); and

inserts the batched new data into the insert table with a single database access (see column 2, lines 34-36).

As to claim 69, Kawai teaches a computer program product for operating an operational data store (see abstract; column 1, lines 8-10; and column 3, lines 29-33), the computer program product comprising a computer usable medium having computer readable code thereon (see abstract; figure 1; and column 1, lines 6-8), including program code which:

- creates a new partition in a composite-partitioned history table (see figure 7);
- creates a partitioned temporary table (see figure 10B, character 332);
- fills the temporary table with data from an insert table (see figure 10B, character 336);
- exchanges the temporary table with the new partition (see figure 10B, character 348); and
- receives queries and applies the queries to both the history table and the insert table (see column 2, lines 19-21 and column 4, lines 29-42).

5. Claims 70-73 are rejected under 35 U.S.C. 102(e) as being anticipated by Battas et al. (U.S. patent 6,757,706).

As to claim 70, Kawai teaches a system for producing a desired level of service in a mixed workload environment (see column 20, lines 31-34), comprising:

- a high-speed insert operational data store (ODS) (see column 15, lines 34-37);
- a throttler for throttling selected transactions to the ODS (see column 15, lines 41-45); and

an aggregator for accumulating transactions into batches and inserting each of the batches into the ODS using a single database transaction per batch (see column 15, lines 41-46).

As to claim 71, Kawai teaches, wherein the mixed workload environment includes at least two of archiving, OLTP queries, DSS queries, high-speed inserts, backup processes and extract/translate/load transactions. (see figure 8; column 2, lines 50-54; and column 20, lines 28-33).

As to claim 72, Kawai teaches a method for producing a desired level of service in a mixed workload environment (see column 20, lines 31-34), comprising:

insert transactions into an operational data store (ODS) at a high-speed (see column 15, lines 34-37);

throttling selected transactions to the ODS (see column 15, lines 41-45);

accumulating transactions into batches (see column 15, lines 41-46); and

inserting each of the batches into the ODS using a single database transaction per batch (see column 15, lines 41-46).

As to claim 73, Kawai teaches wherein the mixed workload environment includes at least two of archiving, OLTP queries, DSS queries, high-speed inserts, backup processes and extract/translate/load transactions (see figure 8; column 2, lines 50-54; and column 20, lines 28-33).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 14-22 and 45-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai (U.S. patent 5,717,924) in view of Kessler et al. (U.S. patent 5,761,706).

As to claim 14, Kawai teaches the operational data store further comprising:
an aggregator for batching the accumulated data and transferring the
batched data into the insert table with a single database access (see column 2, lines 34-36).

Kessler et al. teaches stream buffers for high-performance computer memory system (see abstract), in which he teaches an aggregation buffer for accumulating new data (see abstract and column 1, lines 6-8).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Kawai, to include an aggregation buffer for accumulating new data.

It would have been obvious to a person having ordinary skill in the

art at the time the invention was made to have modified Kawai by the teaching of Kessler et al., because an aggregation buffer for accumulating new data, would enable the method because, it is advantageous to replace or supplement the secondary cache with buffers. Buffers require much less hardware to implement, yet can provide performance similar to a large secondary cache. "Method and apparatus for a filtered stream buffer coupled to a memory and a processor, and operating to prefetch data from the memory. The filtered stream buffer includes a cache block storage area and a filter controller. The filter controller determines whether a pattern of references has a predetermined relationship, and if so, prefetches stream data into the cache block storage area ", (see Kessler et al., abstract).

As to claim 15, Kawai, as modified teaches wherein the aggregator transfers a batch of new data into the insert table when the batch surpasses a maximum size (see Kessler et al., column 11, lines 30-34).

As to claim 16, Kawai, as modified teaches wherein batch size is measured according to a number data bytes (see Kessler et al., figure 11 and column 14, lines 29-30).

As to claim 17, Kawai, as modified teaches wherein batch size is measured according to a number of records (see Kessler et al., figures 9 and 11).

As to claim 18, Kawai, as modified teaches wherein the maximum size is configurable (see Kessler et al., figures 11 and 12 and column 16, lines 30-35).

As to claim 19, Kawai, as modified teaches wherein the aggregator transfers batches of new data into the insert table at regular intervals, defined by a given period (see Kessler et al., column 1, lines 18-20).

As to claim 20, Kawai, as modified teaches wherein the period is configurable (see Kessler et al., column 1, lines 11-20).

As to claim 21, Kawai, as modified teaches wherein the aggregator transfers batches of new data into the insert table when the aggregation buffer surpasses a given maximum buffer size (see Kessler et al., column 6, lines 51-53).

As to claim 22, Kawai, as modified teaches wherein the maximum buffer size is configurable (see Kessler et al., figures 11 and 12 and column 16, lines 30-35).

As to claim 45, Kawai teaches the method further comprising:
inserting the batched new data into the insert table with a single database access (see column 2, lines 34-36).

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Kessler et al. teaches stream buffers for high-performance computer memory system (see abstract), in which he teaches aggregating new data into batches (see abstract and column 14, lines 55-57).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Kawai, to include aggregating new data into batches.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Kawai by the teaching of Kessler et al., because aggregating new data into batches, would enable the method because, batching the data makes easier and fast the transfer of the data to the corresponding table and is going to be just a single access to the memory.

As to claim 46, Kawai, as modified teaches wherein a batch of new data is transferred into the insert table when the batch surpasses a maximum size (see Kessler et al., column 11, lines 30-34).

As to claim 47, Kawai, as modified teaches wherein batch size is measured according to a number data bytes (see Kessler et al., figure 11 and column 14, lines 29-30).

As to claim 48, Kawai, as modified teaches wherein batch size is measured according to a number of records (see Kessler et al., figures 9 and 11).

As to claim 49, Kawai, as modified teaches wherein the maximum size is configurable (see Kessler et al., figures 11 and 12 and column 16, lines 30-35).

As to claim 50, Kawai, as modified teaches wherein batches of new data are transferred into the insert table at regular intervals, defined by a given period (see Kessler et al., column 1, lines 18-20).

As to claim 51, Kawai, as modified teaches wherein the period is configurable (see Kessler et al., column 1, lines 11-20).

As to claim 52, Kawai, as modified teaches the method further comprising:
aggregating the batches of new data in an aggregation buffer, wherein the batches are transferred into the insert table when the aggregation buffer surpasses a given maximum buffer size (see Kessler et al., column 6, lines 51-53).

As to claim 53, Kawai, as modified teaches wherein the maximum buffer size is configurable (see Kessler et al., figures 11 and 12 and column 16, lines 30-35).

Allowable Subject Matter

8. Claims 5-7, 23-28, 36-38, 54-59, 64, and 68 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record, Kawai (U.S. patent 5,717,924), Kessler et al. (U.S. patent 5,761,706), and Battas et al. (U.S. patent. 6,757.689), do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim):

wherein each partition is sub-partitioned into a number of sub-partitions equal to the number of database server instances, as claimed in claim 5.

Claims 6 are objected to as being dependent from the objected to dependent claim 5.

The prior art of record, Kawai (U.S. patent 5,717,924), Kessler et al. (U.S. patent 5,761,706), and Battas et al. (U.S. patent. 6,757.689), do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim):

wherein each of the selecting an index key step comprises the steps of:

wherein each sub-partition of a partition is associated with a database server instance, as claimed in claim 7.

The prior art of record, Kawai (U.S. patent 5,717,924), Kessler et al. (U.S. patent 5,761,706), and Battas et al. (U.S. patent. 6,757.689), do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim):

the operational data store further comprising:

a throttler for throttling transactions of different classes independently to achieve a desired level of service, as claimed in claim 23.

Claims 24-25 are objected to as being dependent from the objected to dependent claim 23.

The prior art of record, Kawai (U.S. patent 5,717,924), Kessler et al. (U.S. patent 5,761,706), and Battas et al. (U.S. patent. 6,757.689), do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim):

the operational data store further comprising:

a plurality of processor nodes configured as a processor cluster, wherein distinct database server instances are associated with distinct processor nodes of the processor cluster, as claimed in claim 26.

Claims 27-28 are objected to as being dependent from the objected to dependent claim 26.

The prior art of record, Kawai (U.S. patent 5,717,924), Kessler et al. (U.S. patent 5,761,706), and Battas et al. (U.S. patent. 6,757.689), do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim):

wherein each partition is sub-partitioned into a number of sub-partitions equal to the number of database server instances, as claimed in claim 36.

Claim 37 are objected to as being dependent from the objected to dependent claim 36.

The prior art of record, Kawai (U.S. patent 5,717,924), Kessler et al. (U.S. patent 5,761,706), and Battas et al. (U.S. patent. 6,757.689), do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim):

the method further comprising:

associating each sub-partition of a partition with a database server instance, as claimed in claim 38.

The prior art of record, Kawai (U.S. patent 5,717,924), Kessler et al. (U.S. patent 5,761,706), and Battas et al. (U.S. patent. 6,757.689), do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim):

The method further comprising:
throttling transactions of different classes independently to achieve a
desired level of service, as claimed in claim 54.

Claims 55-56 are objected to as being dependent from the objected to
dependent claim 54.

The prior art of record, Kawai (U.S. patent 5,717,924), Kessler et al. (U.S.
patent 5,761,706), and Battas et al. (U.S. patent. 6,757.689), do not disclose,
teach, or suggest the claimed limitations of (in combination with all other features
in the claim):

The method further comprising:
configuring plural processor nodes as a processor cluster; and
executing distinct database server instances on distinct processor nodes
of the processor cluster, as claimed in claim 57.

Claims 58-59 are objected to as being dependent from the objected to
dependent claim 57.

The prior art of record, Kawai (U.S. patent 5,717,924), Kessler et al. (U.S.
patent 5,761,706), and Battas et al. (U.S. patent. 6,757.689), do not disclose,

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teach, or suggest the claimed limitations of (in combination with all other features in the claim):

The operational data store further comprising:

means for throttling transactions of different types independently to achieve a desired level of service, as claimed in claim 64.

The prior art of record, Kawai (U.S. patent 5,717,924), Kessler et al. (U.S. patent 5,761,706), and Battas et al. (U.S. patent. 6,757,689), do not disclose, teach, or suggest the claimed limitations of (in combination with all other features in the claim):

wherein the program code further:

throttles transactions of different types independently to achieve a desired level of service, as claimed in claim 68.

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Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Belix M. Ortiz whose telephone number is 703-305-7605. The examiner can normally be reached on Monday-Friday 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici can be reached on 703-305-3830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

bmo

September 13, 2004.



**SAM RIMELL
PRIMARY EXAMINER**